

! FINDPATTERNS on sp1pig* allowing 0 mismatches

use → GCHY ck: 206 len: 180 ! glucagon precursor - golden hamster
 1 accession HADGFSFSDEMNT(M,L,I,V,C)LD(A,S,T,P,G,N,D,E,Q)LA(A,S,T,P,G) (H,R)DFINNL(M,L,I,V,
 ID to match HADGFSFSDEMNT(M,L,I,V,C)LD(A,S,T,P,G,N,D,E,Q)LA(A,S,T,P,G) (H,R)DFIN
 alignment 146: ELGRR HADGFSFSDEMNT(IILD(S)LA(T)(R)DINWL(1)'Q)TKITD-KK
 to database GCPC ck: 106 len: 158 ! glucagon precursor - pig (fragment)
matching portion of db seq
 1 HADGFSFSDEMNT(M,L,I,V,C)LD(A,S,T,P,G,N,D,E,Q)LA(A,S,T,P,G) (H,R)DFIN
 HADGFSFSDEMNT(VILD(N)LA(T)(R)DINWL(1)'H)TKITD

126: ELGRR HADGFSFSDEMNTVILD(N)LA(T)(R)DINWL(1)'H)TKITD
 GCSP ck: 629 len: 180 ! glucagon precursor - guinea pig

HADGFSFSDEMNT(M,L,I,V,C)LD(A,S,T,P,G,N,D,E,Q)LA(A,S,T,P,G) (H,R)DFIN

145: ELGRR HADGFSFSDEMNT(IILD(N)LA(T)(R)DINWL(1)'Q)TKITD-RK
 HADGFSFSDEMNT(IILD(N)LA(T)(R)DINWL(1)'Q)TKITD-RK

GCHU ck: 9748 len: 180 ! glucagon precursor [validated] - human

HADGFSFSDEMNT(M,L,I,V,C)LD(A,S,T,P,G,N,D,E,Q)LA(A,S,T,P,G) (H,R)DFIN
 HADGFSFSDEMNT(IILD(N)LA(T)(R)DINWL(1)'Q)TKITD
 HADGFSFSDEMNT(IILD(N)LA(T)(R)DINWL(1)'Q)TKITD-RK

146: ELGRR HADGFSFSDEMNT(IILD(N)LA(T)(R)DINWL(1)'Q)TKITD

GCRT ck: 9106 len: 180 ! glucagon precursor - rat

HADGFSFSDEMNT(M,L,I,V,C)LD(A,S,T,P,G,N,D,E,Q)LA(A,S,T,P,G) (H,R)DFIN
 HADGFSFSDEMNT(IILD(N)LA(T)(R)DINWL(1)'Q)TKITD
 HADGFSFSDEMNT(IILD(N)LA(T)(R)DINWL(1)'Q)TKITD

Databases searched:
 PIR, Release 79.0, Released on 16Aug2004, Formatted on 7Oct2004

Total finds: 5
 Total length: 95,216,763
 Total sequences: 283,416
 CPU time: 02:46.71

11AA_SEQUENCE 1..0
 P1;GCHY - glucagon precursor - golden hamster.
 N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1;
 C;Species: *Macrourus auratus* (golden hamster)
 C;Accession: A01539
 C;Date: 13-Jun-1983 #sequence_revision 13-Jun-1983 #text_change 20-Mar-1998
 R;Bell, G.I.; Santerre, R.F.; Mullenbach, G.T.
 Nature 302, 716-718, 1993
 A;Title: Hamster preproglucagon contains the sequence of glucagon and two
 related peptides.
 A;Reference number: A01539; MUID:83167563; PMID:6835407
 A;Accession: A01539
 A;Molecule type: mRNA
 A;Residues: 1-180 <BEL>
 A;Cross-references: EMBL: J00059
 C;Superfamily: glucagon
 C;Key words: amidated carboxyl end; carbohydrate metabolism; duplication;
 C;hormone; pancreas
 F;1-20/domain: signal sequence #status predicted <SIG>
 F;21-180/Product: proglucagon #status predicted <PGC>
 F;21-50/Region: glicentin-related peptide #status predicted
 F;53-81/Product: glucagon #status predicted <GCN>
 F;88-127/Product: glucagon-like peptide 1 #status predicted <GL1>
 F;98-127/Product: glucagon-like peptide 2 #status predicted <GL2>
 F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from
 following glycine) #status Predicted

GCHY Length: 180 December 27, 2004 13:06 Type: P Check: 206 ..

1 MKNIYIVAGF FCGGQGSWQ HSLQDTEKS RSFPASQTDP LEDPDQINED
 51 KRISQGTTFS DYSKYLDSRR AQDFVQMLMN TKRNRMIAK RHDEFERHAE
 101 GTFFRSVDVSSY LECQAAKERTI AWLVKGGRGR DRPEEVETIVE ELGRRHADGS
 151 FSDEMENTILD SLATRDFINW LIQTKITDKK

IIAA-SEQUENCE 1.0
 F1:<GCPG - glucagon precursor - pig (fragment)
 N;Alternate names: glicentin, oxyntomodulin
 N;Contains: glicentin-related peptide; glucagon; glucagon-37 (oxyntomodulin);
 C;Species: Sus scrofa domesticus (domestic pig)
 C;Accession: A01540; A60312; A91781; B32614; A28064
 R;Tim, L.; Moody, A.J.
 Regul. Pept. 2, 139-150, 1981
 A;Title: The primary structure of porcine glicentin (proglucagon).
 A;Reference number: A94233; MUID:61248172; PMID:6694800
 A;Accession: A01540
 A;Molecule type: protein
 A;Residues: 1-69 <PRL>
 R;Thim, L.; Moody, A.J.
 Regul. Pept. Suppl. 2, S33, 1983
 A;Title: Primary structure of a possible porcine proglucagon fragment.
 A;Reference number: A60312
 A;Accession: A60312
 A;Molecule type: protein
 A;Residues: 1-30 <PR2>
 A;Note: this peptide is co-secreted with glucagon from the pancreas
 R;Bromer, W.W.; Sim, L.G.; Behrens, O.K.
 J. Am. Chem. Soc. 79, 2867-2870, 1957
 A;Title: The amino acid sequence of glucagon. V. Location of amide groups, acid
 degradation studies and summary of sequential evidence.
 A;Reference number: A91781
 A;Accession: A91781
 A;Molecule type: protein
 A;Residues: 35-61

 R;Orskov, C.; Bersani, M.; Johnsen, A.H.; Hojrup, P.; Holst, J.J.
 J. Biol. Chem. 264, 12861-12879, 1989
 A;Title: Complete Sequences of glucagon-like peptide-1 from human and pig small
 intestine.
 A;Reference number: A92732; MUID:932738; PMID:753890
 A;Accession: B32614
 A;Molecule type: protein
 A;Residues: 70-107 <ORS>
 R;Buhi, T.; Thim, L.; Kofod, H.; Orskov, C.; Harling, H.; Holst, J.J.
 J. Biol. Chem. 263, 8621-8624, 1988
 A;Title: Naturally occurring products of proglucagon 111-160 in the porcine and
 human small intestine.
 A;Reference number: A28064; MUID:88243712; PMID:3379036
 A;Molecule type: protein
 A;Residues: 111-158 <BUH>
 C;Comment: X's represent missing amino acids, mostly basic, that are predicted
 to exist in proglucagon before cleavage after basic residues.
 C;Superfamily: glucagon
 C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication;
 hormone; intestine; pancreas
 F1-69/Product: Glucagon-69 #status experimental <G69>
 F1-30/Region: glicentin-related peptide #status experimental <G69>
 F1-33-69/Product: glucagon-37 #status predicted <G37>
 F1-33-61/Product: glucagon #status experimental <GCN>
 F1-78-107/Product: glucagon-like peptide 1 #status experimental <GL1>
 F1-126-158/Product: glucagon-like peptide 2 #status experimental <GL2>
 F1-07/Modified site: amidated carboxyl end (Arg) (amide in mature form from
 following glycine) #status experimental
 GCPG Length: 158 December 27, 2004 13:06 Type: P Check: 106 ..
 1 RSLQNTEEKS RSFPAPQDTP LDDPDQMTED KRSQSGFTPS DYSKVLDSRR
 51 AQDFEWLMLN TKRTRNNIAX XXXXXXXXAE GFTTSVSSY LEGQIAKEFI
 101 AWLVFKGRGX DFPEEVITVE ELGRRHADGS FSDEMNTVLD NLATRDPFINW
 151 LLHMKTD

~~use accession ID to match situation to alignment~~

I.IAA_SEQUENCE 1..0
 P1;GGGP-. glucagon precursor - guinea pig
 N;Alternate names: oxyntomodulin
 N;Contains: glicentin-related peptide; glucagon; glucagon-37 (oxyntomodulin);
 C;Species: *Cavia porcellus* (guinea pig)
 C;Date: 30-Sep-1987 #sequence revision 31-Dec-1992 #text_change 09-Jul-2004
 C;Accession: A24856; A23849; A6023;
 R;Seino, S.; Welsh, M.; Bell, G.I.; Chan, S.J.; Steiner, D.F.
 FEBs Lett. 203, 21-30, 1986
 A;Title: Mutations in the guinea pig preproglucagon gene are restricted to a
 specific portion of the prohormone sequence.
 A;Reference number: A24856; MUID:8624818; PMID:3755107
 A;Accession: A24856
 A;Molecule type: mRNA
 A;Residues: 1-180 <SEL>
 A;Cross-references: UNIPROT:P05110; DDBJ:D00014; GB:N00014; NID:9220288;
 PMID:BA00010.1; PID:9220289;
 R;Huang, C.G.; Eng, J.; Pan, Y.C.E.; Hulmes, J.D.; Yallow, R.S.
 Regul. Pept. 11, 309-320, 1985
 Diabetes 35, 508-512, 1986
 A;Title: Guinea pig glucagon differs from other mammalian glucagons.
 A;Reference number: A23849; MUID:86165412; PMID:3956884
 A;Accession: A23849
 A;Molecule type: protein
 A;Residues: 53-81 <HUA>
 R;Conlon, J.M.; Hansen, H.F.; Schwartz, T.W.
 Regul. Pept. 11, 309-320, 1985
 A;Title: Primary structure of glucagon and a partial sequence of oxyntomodulin
 (glucagon-37) from the guinea pig.
 A;Reference number: A60323; MUID:86017049; PMID:4048553
 A;Accession: A60323
 A;Molecule type: protein
 A;Residues: 53-81 <CON>
 A;Note: glucagon-37 was not completely sequenced
 C;Superfamily: glucagon
 C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication;
 C;Keywords: pancreatic hormone; pancreas
 F;1-20/Domain: signal sequence #status predicted <SIG>
 F;21-180/Product: proglucagon #status predicted <PGC>
 F;21-50/Region: glicentin-related peptide #status predicted
 F;53-89/Product: glucagon-37 (oxyntomodulin) #status experimental <G37>
 F;88-121/Product: glucagon #status predicted <G1>
 F;146-178/Product: glucagon-like peptide 1 #status predicted <GLP1>
 F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from
 following glycine) #status predicted
 GCGP Length: 180 December 27, 2004 13:05 Type: P Check: 629 ..
 1 MKSVPVFVAGL FIMLAQGQSWQ RSLQDTEBKP RSVSASQDM LDDPDQMDED
 51 KHRISQGTFTS DYSKYLDSSR AQQPLKMLLN VKRNRRNIKK RHDERFHAE
 101 GTFRPSDVSSY LEGQAQAKSPF AMIVKGGRR DEPEEVAIE ELGRRHADGS
 151 FSDENNTILD NLATRDFINW LIOTKIRDK

! :AA-SEQUENCE 1.0
 P1;GCHU - glucagon precursor [validated] - human
 N;Contains: glicentin; glicentin-related polypeptide (GRPP); glucagon;
 glucagon-like peptide 1 (GLP1); glucagon-like peptide 2 (GLP2); major
 proglucagon fragment; oxyntomodulin; truncated glucagon-like peptide 1 (tGLP1)
 C;Species: Homo Sapiens (man)
 C;Date: 24-Apr-1984 #sequence revision 31-Mar-1993 #text_change 09-Jul-2004
 C;Accession: A24377; A41197; A30875; A32614; A01541; S23309
 R;Whit, J.W.; Saunders, G.F.
 Nucleic Acids Res. 14, 4719-4730, 1986
 A;Title: Structure of the human glucagon gene.
 A;Reference number: A24377; MUID:86259053; PMID:3725587
 A;Accession: A24377
 A;Molecule type: DNA
 A;Residues: 1-180 <WHI>
 A;Cross-references: UNIPROT:P01275; GB:X03991
 R;Bell, G.I.; Sanchez-Pescador, R.; Laybourn, P.J.; Najarian, R.C.
 Nature 309, 369-371, 1993
 A;Title: Exon duplication and divergence in the human preproglucagon gene.
 A;Reference number: A44197; MUID:83271477; PMID:6877358
 A;Accession: A44197
 A;Molecule type: DNA
 A;Residues: 1-179 <BEL>
 A;Cross references: GB:W01515; NID:931777; PID:CA24759.1; PID:931778
 R;Drucker, D.J.; Abu, S.
 J. Biol. Chem. 263, 13475-13478, 1988
 A;Title: Glucagon gene expression in vertebrate brain.
 A;Reference number: A30875; MUID:88330860; PMID:2901414
 A;Accession: A30875
 A;Molecule type: mRNA
 A;Residues: 1-180 <DRU>
 A;Accession: A32614
 A;Molecule type: protein
 A;Residues: 91-127 <ORS>
 R;Thomsen, J.; Kristianien, K.; Brunfeldt, K.; Sundby, F.
 FEBS Lett. 21, 315-319, 1972
 A;Title: The amino acid sequence of human glucagon.
 A;Reference number: A91373
 A;Accession: A01541
 A;Molecule type: protein
 A;Residues: 53-81 <THO>
 R;Teugis, A.; Takemoto, K.; Kamo, M.; Iwadate, H.
 Eur. J. Biochem. 206, 631-636, 1992
 A;Title: C-terminal sequencing of protein. A novel partial acid hydrolysis and
 analysis by mass spectrometry.
 A;Reference number: S23188; MUID:92298996; PMID:1606956
 A;Accession: S23309
 A;Molecule type: protein
 A;Residues: 53-81 <TSU>
 C;Comment: In pancreatic alpha-cells, proglucagon is processed to
 glicentin-related polypeptide, glucagon, and major proglucagon fragment that is
 further processed to glucagon-like peptide 1. In intestinal L cells,
 proglucagon is processed to truncated glucagon-like peptide 1, glucagon-like
 peptide 2, and glicentin that is partially further processed to
 glicentin-related polypeptide and oxyntomodulin.
 C;Genetics:
 A;Gene: GDB:GCG
 A;Cross references: GDB:119265; OMIM:138030
 A;Map position: 2q36-2q37
 A;Introns: 31/2; 85/2; 131/2; 179/2
 C;Superfamily: glucagon
 C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication;
 F;1-20/Domain: signal sequence #status predicted <SIG>
 F;21-180/Product: proglucagon #status experimental <PGC>
 F;21-89/Product: glicentin #status experimental <GLN>
 F;21-50/Product: glicentin-related polypeptide #status predicted <GRPP>

F;53-89/Product: oxyntomodulin #status experimental <OXN>
 P;53-81/Product: glucagon #status experimental <GCN>
 F;92-178/Product: major proglucagon fragment #status experimental <MPGF>
 F;92-127/Product: glucagon-like peptide 1 #status experimental <GL1>
 F;98-127/Product: truncated glucagon-like peptide 1 #status experimental <TGL>
 F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
 F;127/Modified Site: amidated carboxyl end (Arg) (amide in mature form from
 following glycine) #status experimental
 GCHU length: 180 December 27, 2004 13:06 Type: P Check: 9748 ..
 1 MKSIVYVAGL FVMLVQGSWQ RSLQDTEKRS RSFSASQADP LSDPQMD
 51 KRHSQGTFTS DSYKYLDSRR AQDFVOMLMN TKNRNRNIAK RHDEFERRHAE
 101 GITFTSDVSSY LEGQAAKEFI AWLVKGRRGR DFPEEVAIVE ELGRRHADS
 151 FSDENATLTD NIARDFTNW LIQTKIDRK

! IAA-SEQUENCE 1..0
 P1_GCRT - glucagon precursor - rat
 N; Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1;
 glucagon-like peptide 2
 C; Species: *Rattus norvegicus* (Norway rat)
 C; Date: 30-Sep-1987 #sequence revision 30-Sep-1987 #text_change 09-Jul-2004
 C; Accession: A22655; A25190; A44198
 R; Heinrich, G.; Gros, P.; Habener, J.F.
 J. Biol. Chem. 259, 14082-14087, 1984
 A; Title: Glucagon gene sequence: four of six exons encode separate functional
 domains of rat pre-proglucagon.
 A; Reference number: A22655; MUID:85054853; PMID:6094539
 A; Molecule type: DNA
 A; Residues: 1-180 <HEI>
 A; Cross-references: UNIPROT:P06883; EMBL:K02809
 A; Note: the authors translated the codon TTG for residue 10 as Glu and ACC for
 residue 59 as Pro
 R; Mojssov, S.; Heinrich, G.; Wilson, T.B.; Ravazzola, M.; Orci, L.; Habener, J.F.
 J. Biol. Chem. 261, 11880-11889, 1986
 A; Title: Preproglucagon gene expression in pancreas and intestine diversifies
 at the level of post-translational processing.
 A; Reference number: A25190; MUID:86304324; PMID:3528148
 A; Accession: A25190
 A; Status: not compared with conceptual translation
 A; Molecule type: mRNA
 A; Residues: 1-180 <MOJ>
 R; Heinrich, G.; Gros, P.; Lund, P.K.; Bentley, R.C.; Habener, J.F.
 Endocrinology 115, 2176-2181, 1984
 A; Title: Preproglucagon messenger ribonucleic acid: nucleotide and encoded amino acid sequences of the rat pancreatic complementary deoxyribonucleic acid.
 A; Reference number: A44198; MUID:85051023; PMID:6548696
 A; Accession: A44198
 A; Status: preliminary
 A; Molecule type: mRNA
 A; Residues: 1-180 <HE2>
 A; Cross-references: GB:K02809; GB:K02810; GB:K02811; GB:K02812
 C; Genetics:
 C; Introns: 31/2; 85/2; 131/2; 179/2
 C; Superfamily: glucagon
 C; Keywords: amidated carboxyl end; carbohydrate metabolism; duplication;
 hormone; pancreas
 F; -2/0 Domain: signal Sequence #status predicted <SIG>
 F; 21-180/Product: proglucagon #status predicted <PGC>
 F; 21-50/Region: glicentin-related Peptide #status predicted
 F; 53-81/Product: glucagon #status predicted <GCN>
 F; 98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
 F; 146-180/Product: glucagon-like peptide 2 #status predicted <GL2>
 F; 27/Modified Site: amidated carboxyl end (Arg) (amide in mature form from
 following glycine) #status predicted
 GCRT Length: 180 December 27, 2004 13:07 Type: P Check: 9106 ..
 1 MKTVYIVAGL FWLWQGSMQ HARQDTHENA RSFPASQTEP LEDPQINED
 51 KRHSQGTFNS DYSKYLDERR AQDFVOMLN TRRNRRNIKK RHDEFERHAE
 101 GFTTSQDVSSY LEGQQAKEFI AWLVKGGRRR DFFEEVAIAE ELGRHRDGGS
 151 FSDDMNTIID NIATRDFENW LIQTKIKDKK